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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,408	06/21/2001	Nobuhiko Miki	209657US2	3934

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EXAMINER	
LAMARRE, GUY J	
ART UNIT	**PAPER NUMBER**
2133	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

TH

Office Action Summary	Application No.	Applicant(s)	
	09/885,408	MIKI ET AL.	
	Examiner	Art Unit	
	Guy J. Lamarre	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2005 and 20 June 2005* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6 and 8-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6 and 8-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *26 January 2004* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

0. This office action is in response to Applicants' Amendments of 2/03/05 and 6/20/05.

0.1 **Claims 12** and 13 are cancelled, **Claims 1, 4, 6, 8-11** are amended. **Claims 1, 3-6, 8-11** remain pending.

0.2 The election requirements, objections and rejections of record are withdrawn in response to Applicants' **Amendments**.

Claim Objections

1. In **Claims 3, 5**, transmission and reception end shall be replaced with transmission and reception station. It is not clear, **in** Claim 1 line 5, what is meant by "it." Appropriate correction is required.

Claim Rejections - 35 USC § 112 SECOND PARAGRAPH

1.1 The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

* **Claims 6, 8-9, 11** are rejected under 35 USC § 112 SECOND PARAGRAPH for failing to particularly point out and distinctly define the subject matter which the applicant regards as his invention.

* **As per Claim 6,** it is not clear to the Examiner how the host station generates ACK signal when said ACK signals had already been generated by the plural reception stations.

Claim 8 fails to cure the deficiency in Claim 6 is also rejected for inheriting same deficiency.

* **As per Claim 8,** there is also a lack of antecedent basis in lines 2 & 4 for "the mobile & the base" respectively.

As per Claim 8, it is also not clear to the Examiner what is being performed: mobile station and reception end seem to be the same end, mobile stations are receiving ACK/nack signals when mobile stations are expected to generate such ACK/nack signals mobile station receive ACK/nack signals from plural base stations when a single such base station is expected. For examination purposes, it is assumed that a base station transmits data and the receivers/mobile stations feed back status information, and that reception end and mobile station are the same end.

* **As per Claim 9,** it is not clear to the Examiner how the host station generates ACK signal when said ACK signals had already been generated by the plural reception stations or how the plural reception stations transmit the same ACK/NACK signals generated by the host.

* **As per Claim 11,** it is not clear to the Examiner how the base station generates ACK signal to be sent to host and mobile stations when by definition, said base station is expected to send data and the receiving stations are expected to acknowledge via feedback to said base station status of received data. For examination purposes, it is assumed that base transmits data and the receivers/mobile stations feed back status information.

Claim Rejections - 35 USC ' 103

2. **Claims 1, 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rathonyi et al.** (US Patent No. 6,532,211; filed 20 Oct. 1999) in view of **Cam et al.** (*Efficient ARQ schemes for point-to-multipoint communication*; IEEE International Conference on Communications; 23-26 June 1991; On page(s): 1627 - 1632 vol.3).

Referring to **Claim 1**, **Rathonyi et al.** teaches data transfer protocols for an ARQ system wherein

a 1st transceiver signal carries information from receiver to transmitter, and

a 2nd transceiver signal carries information from transmitter to receiver.

Transmitter information is processed/demodulated (col. 11 lines 3 et seq.) at the receiver wherein an error detection procedure is performed on said transmitter information so received:

if no error is detected, a 1st reliability level is issued from the receiver to the transmitter via an ACK embedded in said 1st transceiver signal to thereby request that more of said information be transmitted, hence ARQ (col. 10 lines 39-67 et seq.);

if an error is detected, a 2nd reliability level is issued from the receiver to the transmitter via a NACK embedded in said 1st transceiver signal to thereby request that said information be retransmitted (e.g., Figs. 7-11 and col. 10 lines 39-67 et seq.);

if an error is detected plural data transfer times, a 3d reliability level is issued from the receiver to the transmitter via a NACK embedded in said 1st transceiver signal to thereby request that said information be retransmitted at e.g., Figs. 7-11 and col. 4 lines 56-65, col. 6 lines 15-25 & 58-67, col. 7 lines 1-6, col. 7 line 65 - col. 8 lines 67, col. Lines 10-47, col. 11 line 60 et seq.

Rathonyi et al. further teaches that, as data transfer continues, additional reliability levels will be issued based on information reliability level of 1st information transmission, 1st information retransmission, 2nd information retransmission,..., to effectively result in dynamically assigning at least 3 levels of reliability, e.g., at col. 19 lines 39-67 et seq., said issuing of levels of reliability being based on quality of the physical link between transmitter and receiver in col. 2 line 20 et seq.

Not specifically described in detail in **Rathonyi** is the step of combining received information/or packet with information retransmission/retransmission packet, which is a form of hybrid ARQ/FEC.

Equivalently, Rathonyi suggests supplementing ARQ for data transfer reliability with plural alternatives, one of which is FEC at col. 2 line 1 et seq.

Accordingly, Cam, in an analogous art, discloses an ARQ protocol wherein such techniques are described, e.g., in para. 3 col. 1 page 1627 – page 1630 para. 1 col. 1, particularly page 1627 col. 2 penultimate para.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure of **Rathonyi et al.** by including therein packet combination protocol based on said reliability determination methods as taught by **Cam** because such modification would provide the procedure disclosed in **Rathonyi et al.** with a technique data processing is substantially improved only thanks to a combining scheme. {See **Cam**, Id., page 1629: *Numerical Results.*}

Referring to **Claim 3**, **Rathonyi** discloses transmission control parameter performing means in col. 2 lines 1-11 et seq.

3. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Rathonyi et al.** (US Patent No. 6,532,211; filed 20 Oct. 1999) in view of **Lin et al.** (*RMTP: a reliable multicast transport protocol*; 24-28 March 1996, page(s): 1414 - 1424 vol.3).

Referring to **Claim 4**, **Rathonyi** discloses power control protocols for an ARQ system comprising transmission control parameter performing means at the data source whereby level of reliability of data transfer at the receiver is maintained or kept constant via, e.g., varying transmission power, e.g. in col. 2 lines 1-11 et seq.

Rathonyi also discloses data transfer protocols for an ARQ system wherein

a 1st transceiver signal carries information from receiver to transmitter, and

a 2nd transceiver signal carries information from transmitter to receiver.

Transmitter information is processed/demodulated (col. 11 lines 3 et seq.) at the receiver wherein an error detection procedure is performed on said transmitter information so received:

if no error is detected, a 1st reliability level is issued from the receiver to the transmitter via an ACK embedded in said 1st transceiver signal to thereby request that more of said information be transmitted, hence ARQ (col. 10 lines 39-67 et seq.);

if an error is detected, a 2nd reliability level is issued from the receiver to the transmitter via a NACK embedded in said 1st transceiver signal to thereby request that said information be retransmitted (e.g., Figs. 7-11 and col. 10 lines 39-67 et seq.);

if an error is detected plural data transfer times, a 3d reliability level is issued from the receiver to the transmitter via a NACK embedded in said 1st transceiver signal to thereby request that said information be retransmitted at e.g., Figs. 7-11 and col. 4 lines 56-65, col. 6 lines 15-25 & 58-67, col. 7 lines 1-6, col. 7 line 65 - col. 8 lines 67, col. Lines 10-47, col. 11 line 60 et seq.

Rathonyi et al. further teaches that, as data transfer continues, additional reliability levels will be issued based on information reliability level of 1st information transmission, 1st information retransmission, 2nd information retransmission,..., to effectively result in dynamically assigning at least 3 levels of reliability, e.g., at col. 19 lines 39-67 et seq., said issuing of levels of reliability being based on quality of the physical link in col. 2 line 20 et seq.

Not specifically described in detail in **Rathonyi** is the step of storing a history of the received ACK/NACK signals e.g., at col. 19 lines 39-67 et seq.

Equivalently, Rathonyi suggests keeping track of the received ACK/NACK signals to allow for assigning plural levels of reliability to the ACK/NACK signals at col. 2 line 1 et seq.

Accordingly, Lin, in an analogous art, discloses an ARQ protocol wherein such ACK/NACK signals are counted to determine whether data transfer rate needs adjusting, e.g., in last para. of col. 1 page 1419, page 1417 last para., page 1418: *Data Cache*, page 1421 section 5.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure of **Rathonyi et al.** by including therein

ACK/NACK signal history tracking means as taught by **Lin** because such modification would provide the procedure disclosed in **Rathonyi et al.** with a technique data processing is substantially improved via reduction in packet congestion. {See **Lin**, Id., page 1419: *Congestion Avoidance.*}

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Rathonyi, Lin** and **Cam et al.**

Referring to **Claim 5:**

Rathonyi discloses power control protocols for an ARQ system comprising transmission control parameter performing means at the data source whereby level of reliability of data transfer at the receiver is maintained or kept constant via, e.g., varying transmission power, e.g. in col. 2 lines 1-11 et seq.; **Lin** discloses an ARQ protocol wherein data transfer/transmission rates at the transmitter are adjusted on the fly contingent on channel quality as reported by the receiver via NACK level of frequency, e.g., in last para. of col. 1 page 1419, page 1417 last para., page 1418: *Data Cache.*

Not specifically described in detail in **Rathonyi/Lin** is the step of combining received information/or packet with information retransmission/retransmission packet, which is a form of hybrid ARQ/FEC.

Equivalently, Rathonyi suggests supplementing ARQ for data transfer reliability with plural alternatives, one of which is FEC at col. 2 line 1 et seq.

Accordingly, Cam, in an analogous art, discloses an ARQ protocol wherein such techniques are described, e.g., in para. 3 col. 1 page 1627 – page 1630 para. 1 col. 1, particularly page 1627 col. 2 penultimate para.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure of **Rathonyi/Lin et al.** by including

therein packet combination protocol based on said reliability determination methods as taught by **Cam** because such modification would provide the procedure disclosed in **Rathonyi/Lin et al.** with a technique data processing is substantially improved only thanks to a combining scheme. {See **Cam**, Id., page 1629: *Numerical Results.*}

5 **Claims 6, 8-9, 10-11** are rejected as anticipated under 35 U.S.C. 102(b) by, or for **Claim 9** in the alternative, under 35 U.S.C. 103(a) as being unpatentable over, **Lin et al.** (*RMTP: a reliable multicast transport protocol*; 24-28 March 1996, page(s): 1414 - 1424 vol.3).

Referring to **claims 6, 10, Lin et al.** teaches protocols for an ARQ system, on pages 1414 – 1424, comprising unicast and multicast modes of operation wherein data transfer is configurably established at transmitter and one or plural receivers.

In unicast modes of operation the receiver transmits ack/nack signals in ARQ at data reception.

In multicast/uplink/downlink diversity modes of operation, one or plural receivers are configured as host: The sender transfers data to receivers, said receivers configured as hosts or generic/simple receivers via a part generating data (Figs. 1-8); The receivers are configured to feed back ack/nack signals to the transmission station in Fig. 1 or to a dedicated receiver or host, said dedicated receiver or host being configured for generating a common ack/nack to the transmission station (Figs. 2-3), wherein said transmission station is configured to perform retransmit control via said ack/nack signals from the receivers/reception stations.

* Referring to **claim 8, Lin et al.** teaches protocols for an ARQ system, on pages 1414 – 1424, wherein means is provided for determining proper data reception at a mobile/reception end, and to effect data processing when the mobile/reception end receives ACK/Nack signals from plural base/mobile stations via a network configuration wherein said mobile/reception end act as a dedicated mobile/reception end to sink/receive plural ACK/Nack signals.

* Referring to **claim 9**, said claim is rejected as being anticipated via same rationale as that of claim 10 or as being obvious via same rationale as that of claim 1 for plural reliability levels.

Lin et al. teaches protocols for an ARQ system, on pages 1414 – 1424, wherein means is provided for determining proper data reception at a mobile/reception end, and to effect data processing when the mobile/reception end receives ACK/Nack signals from plural base/mobile stations via a network configuration wherein said mobile/reception end act as a dedicated mobile/reception end to sink/receive plural ACK/Nack signals.

Lin et al. teaches ACK/Nack data frame as feedback means from receiver to transmitter in Fig. 4 wherein said ACK/Nack frame depicts at least 2 reliability levels via values of a bit (valid/errored) as described in *Flow Control, Retransmissions and ACK Processing* and *Congestion Avoidance* at page 1417 et seq. At page 1419, **Lin et al.** further teaches monitoring number of NACKs so as to adjust data transmit rate at the sender, which is a third level of reliability depicted for said ACK/Nack frame in Fig. 4.

* Referring to **claim 11, Lin et al.** teaches protocols for an ARQ system, on pages 1414 – 1424, comprising unicast and multicast modes of operation wherein data transfer is configurably established at transmitter and one or plural receivers.

In multicast modes of operation, one or plural receivers are configured as host.

The sender transfers data to receivers, said receivers configured as hosts or generic/simple receivers via a part generating data (Figs. 1-8);

The hosts are configured to receive plural ack/nack signals from the generic/simple receivers and generating either a common ack/nack to the sender made up of a part receiving ack/nack signals wherein said sender is configured to receive either said plural ack/nack signals (Fig. 2) or said a common ack/nack (Fig. 3).

The hosts are further configured to service plural ack/nack signals.

6. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Rathonyi et al.** (US Patent No. 6,532,211; filed 20 Oct. 1999) in view of **Lin et al.** (*RMTP: a reliable multicast transport protocol*; 24-28 March 1996, page(s): 1414 - 1424 vol.3).

Referring to **Claim 9**, **Rathonyi** discloses power control protocols for an ARQ system comprising transmission control parameter performing means at the data source whereby level of reliability of data transfer at the receiver is maintained or kept constant via, e.g., varying transmission power, e.g. in col. 2 lines 1-11 et seq.

Rathonyi also discloses data transfer protocols for an ARQ system for a unicast wherein

a 1st transceiver signal carries information from receiver to transmitter, and

a 2nd transceiver signal carries information from transmitter to receiver.

Transmitter information is processed/demodulated (col. 11 lines 3 et seq.) at the receiver wherein an error detection procedure is performed on said transmitter information so received:

if no error is detected, a 1st reliability level is issued from the receiver to the transmitter via an ACK embedded in said 1st transceiver signal to thereby request that more of said information be transmitted, hence ARQ (col. 10 lines 39-67 et seq.);

if an error is detected, a 2nd reliability level is issued from the receiver to the transmitter via a NACK embedded in said 1st transceiver signal to thereby request that said information be retransmitted (e.g., Figs. 7-11 and col. 10 lines 39-67 et seq.);

if an error is detected plural data transfer times, a 3d reliability level is issued from the receiver to the transmitter via a NACK embedded in said 1st transceiver signal to thereby request that said information be retransmitted at e.g., Figs. 7-11 and col. 4 lines 56-65, col. 6 lines 15-25 & 58-67, col. 7 lines 1-6, col. 7 line 65 - col. 8 lines 67, col. Lines 10-47, col. 11 line 60 et seq.

Rathonyi et al. further teaches that, as data transfer continues, additional reliability levels will be issued based on information reliability level of 1st information transmission, 1st information retransmission, 2nd information retransmission,..., to effectively result in

dynamically assigning at least 3 levels of reliability, e.g., at col. 19 lines 39-67 et seq., said issuing of levels of reliability being based on quality of the physical link in col. 2 line 20 et seq.

Not specifically described in detail in **Rathonyi** is the step of uplink/downlink diversity from base station to plural receivers or mobile stations and host.

Equivalently, Rathonyi suggests data transfer protocols at col. 2 line 1 et seq.

Accordingly, Lin, in an analogous art, discloses an ARQ protocol wherein such multicasting techniques are described, e.g., in penultimate para. of col. 1 page 1414.

For example, **Lin et al.** teaches protocols for an ARQ system, on pages 1414 – 1424, wherein means is provided for determining proper data reception at a mobile/reception end, and to effect data processing when the mobile/reception end receives ACK/Nack signals from plural base/mobile stations via a network configuration wherein said mobile/reception end act as a dedicated mobile/reception end to sink/receive plural ACK/Nack signals.

Lin et al. teaches ACK/Nack data frame as feedback means from receiver to transmitter in Fig. 4 wherein said ACK/Nack frame depicts at least 2 reliability levels via values of a bit (valid/errored) as described in *Flow Control, Retransmissions and ACK Processing* and *Congestion Avoidance* at page 1417 et seq. At page 1419, **Lin et al.** further teaches monitoring number of NACKs so as to adjust data transmit rate at the sender, which is a third level of reliability depicted for said ACK/Nack frame in Fig. 4.

Lin et al. teaches protocols for an ARQ system, on pages 1414 – 1424, comprising unicast and multicast modes of operation wherein data transfer is configurably established at transmitter and one or plural receivers.

In multicast modes of operation, one or plural receivers are configured as host.

The sender transfers data to receivers, said receivers configured as hosts or generic/simple receivers via a part generating data (Figs. 1-8).

The hosts are configured to receive plural ack/nack signals from the generic/simple receivers and generating either a common ack/nack to the sender made up of a part receiving ack/nack signals wherein said sender is configured to receive either said plural ack/nack signals (Fig. 2) or said a common ack/nack (Fig. 3).

The hosts are further configured to service plural ack/nack signals

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure of **Rathonyi et al.** by including therein means for uplink/downlink diversity from base station to plural receivers or mobile stations and host as taught by **Lin** because such modification would provide the procedure disclosed in **Rathonyi et al.** with '*an efficient way of disseminating data from a sender to a group of receivers.*' {See **Lin**, Id., penultimate para. of col. 1 page 1414.}

Conclusion

* Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231

or faxed to: (571) 273-8300 for all formal communications.

Hand-delivered responses should be brought to Customer Services, 220 20th Street S., Crystal Plaza II, Lobby, Room 1B03, Arlington, VA 22202.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guy J. Lamarre, P.E., whose telephone number is (571) 272-3826. The examiner can normally be reached on Monday to Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert De Cady, can be reached at (571) 272-3819.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3609.

Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Guy J. Lamarre, P.E
Primary Examiner
9/12/2005